

CLAIMS

- 1 1. An atomic probe for high density data storage reading, writing, erasing, or rewriting,
2 comprising:
3 a core coupled with a coating.
- 1 2. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 1, wherein the core is an insulator.
- 1 3. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 1, wherein the coating is a conductor.
- 1 4. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 3, wherein the core is a conductor.
- 1 5. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 4, wherein the coating includes one or more of titanium nitride, platinum, diamond-like carbon,
3 tungsten carbide, tungsten, and tungsten oxide.
- 1 6. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 5, wherein the coating includes dopants to increase the conductivity of the coating.

1 7. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 1, wherein the coating contacts a media device.

1 8. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 7, wherein the coating is harder than the media device.

1 9. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 1, wherein the atomic probe has a generally trapezoidal shape.

1 10. The atomic probe for high density data access of claim 1, wherein the coating prevents
2 the core from making any contact with a media device.

1 11. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 1, wherein the coating is embedded into the core.

1 12. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 1, wherein the coating is coupled with a first side of the atomic probe.

1 13. The atomic probe for high density data storage reading, writing, erasing, or rewriting of

2 claim 1, wherein the coating is coupled with a plurality of atomic probe sides.

1 14. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 1, wherein the coating is generally cylindrical in shape.

1 15. An atomic probe for high density data storage reading, writing, erasing, or rewriting
2 comprising:

3 an atomic probe tip;

4 one or more carbon nano-tubes attached or formed on the atomic probe tip.

1 16. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 15, whereby the one or more carbon nano-tubes are attached or formed on the atomic probe tip such
3 that the carbon nano-tubes reduce the interface between the atomic probe tip and a media device.

1 17. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 1, wherein the coating includes a narrow band extending from a first side of the atomic probe, over
3 a tip of the atomic probe to a second side of the atomic probe.

1 18. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 1, including a protective material coupled with the coating.

1 19. The atomic probe for high density data storage reading, writing, erasing, or rewriting of
2 claim 18, wherein the protective material is an insulator.